AMENDMENT NO. 1 JULY 2020

TO

IS 17051 : 2018 TEXTILES — BULLET RESISTANT JACKETS — PERFORMANCE REQUIREMENTS

(*Page* 3, *clause* **3.20**) **—** Insert the following new clause after **3.20**:

'**3.21 Perforation —** Any impact that creates a hole passing through the armor. This may be evidenced by any of the following: (a) the presence of the projectile, a projectile fragment, or an armor fragment in the clay backing material; (b) a hole that passes through the armor and/or backing material; or (c) any portion of the bullet being visible from the body side of the armor panel.'

(*Page* 4, *clause* **5.1.1**) **—** Insert the following new note at the end:

'NOTE — The shelf life of outer carrier fabric without use in ambient prevailing conditions in India shall be 10 years minimum. However, the service or usage life of outer carrier shall be decided by the users.'

(*Page* 4, *clause* **5.1.4**, *line* 1) **—** Substitute 'A' *for* 'An additional'.

(*Page* 5, *clause* **5.1.8**) **—** Insert the following new note at the end:

'NOTE 2 — Quick release mechanism shall work along with double locking of kamarbandh.'

(*Page* 7, *clause* **5.2.7**) **—** Substitute the following for the existing:

'**5.2.7** *General Requirements for SAP and HAP*

The supplier shall declare the type of materials, number of layers, and their areal density in technical bid of tender and shall have to maintain the same in bulk supply. The information shall be kept in sealed/secured condition and shall only be opened in case of failure of lot during bulk testing for comparison.

NOTE — The sealed/secured packet is permitted to be opened by Technical Evaluation Committee (TEC) and after verification shall be kept in sealed/secured condition for future reference. This sealed packet may be retained for successful bidder and be returned for rest of bidders.'

(*Page* 7, *clause* **6.1.3**) **—** Substitute the following for the existing:

'**6.1.3** Threat level 2 onwards may be ICW or standalone configuration. In case of former, the flexible armour panels shall be compliant to threat level 1 in all cases. In case of standalone configuration samples, they shall be compliant to the required threats. Threat levels 3 shall also be compliant to threat level 2. Threat levels 4 and 5 shall also be compliant to threat level 3. For threat level 6, no other compliance is required'

Price Group 2

(*Page* 8, *Table* 7) — Substitute the following for the existing:

Table 7 Threat Levels

(*Clause* 6.1.1)

Sl No.	**Threat Level**	**Ammunition**	**Bullet Weight (*see* Note 1)** g	**Bullet Type**	**Impact Velocity** m/s	**Distance of Impact** m	**Remarks**
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	1	9 × 19 mm	7.4 - 8.2	FMJ/Pb	430 ± 15	5 ± 0.5	For all flexible panels (*see* Note 2)
ii)	2	7.62 × 39 mm	7.45 - 8.05	FMJ/MSC	710 ± 15	10 ± 0.5	—
iii)	3	7.62 × 51 mm	9.4 - 9.6	FMJ/Pb	838 ± 15	10 ± 0.5	In addition, shall be compliance with threat level 2
iv)	4	5.56 × 45 mm	3.5 - 4.0	FMJ/(SI+Pb)	890 ± 15	10 ± 0.5	In addition, shall be compliance with threat level 3 only. Compliance to threat level 2 is not required.
v)	5	7.62 × 39 mm	7.45 - 8.05	HSC	700 ± 15	10 ± 0.5	
vi)	6	7.62 × 54R	10.3 -10.5	API	830 ± 15	10 ± 0.5	Compliance to threat level 2 to 5 is not required.
vii)	Special	Any other requirement by the user. Complete details of ammunition shall be stored for future upgradation of the standard.					

NOTES

1 Routine ballistic evaluation may use service ammunition where bullet weight is not considered. Bullet weight shall be considered for reloaded ammunitions.

2 In case of ICW configuration, for threat level 2 to 6, the flexible armour panels shall be compliant to threat level 1 in all cases.

FMJ:	Full Metal Jacket	Pb:	Lead Core
MSC:	Mild Steel Core	SI:	Steel Insert
HSC:	Hard Steel Core	API:	Armour Piercing Incendiary

(*Page* 9*, clause* **6.5.2.1**) **—** Substitute the following for the existing:

‘6.5.2.1 *Decision on major defect*

Lot shall be rejected, if the non-conformities are equal to or more than the rejection number corresponding to AQL of 2.5 percent (*see* Annex F).

NOTE — Constituent panels of a lot size shall be tested for non-conformities. For example, with a lot size of 100 bullet resistant jackets, 8 panels shall be tested for non-conformities (*see* Annex F).’

(*Page* 9*, clause* **7.1.2**, *sentence* 4) **—** Substitute the following for the existing:

‘In the event of failure, subsequent testing on the same size shall not be permitted, but for other sizes may be permitted.’

(*Page* 9*, clause* **8.0**, *sentence* 1) **—** Substitute the following for the existing:

‘Operating conditions as given in **8.1.1** (low temperature), **8.2.1** (water resistance), **8.2.2** (sea water resistance) and **8.3.2** (vibration test) shall be considered before ballistic evaluation of the bullet resistant jackets.’

(*Page* 9*, clause* **8.0**) **—** Insert the following note at the end:

‘NOTE — If desired by the user, testing of panels in dry condition (range condition) may be excluded, if the panels are tested for other severe conditions (*see* **8.1.1**, **8.2.1**, **8.2.2** and **8.3.2**).’

(*Page* 10*, clauses* **8.1**, **8.1.1** *and* **8.1.2**) **—** Substitute the following for the existing clauses:

‘8.1 Extreme Temperatures

Both SAPs and HAPs shall be subjected to the test specified in **8.1.1**.

8.1.1 *Low Temperature*

Sample shall be cooled to minus 40 ± 5°C for 4 h ± 10 min. The material shall be examined for delamination, matrix cracking, component separation, or any other visual defects. The samples shall be kept in range conditions (*see* **8.4.3**) for minimum 12 h before conducting ballistic evaluation. ’

(*Page* 11*, clause* **8.3,** *line* 4) **—** Delete ‘**8.3.1** and’.

[*Page* 20*, Table* 11*, Sl No.* (ii), *col* 5] **—** Substitute ‘6’ for ‘4’.

[*Page* 20*, Table* 11*, Sl No.* (ii), *col* 6] **—** Substitute ‘—’ for ‘2’.

[*Page* 29, *clauses* **C-2**, **C-2.1** *and* **C-2.2**] — Substitute the following for the existing:

C-2 ICW CONFIGURATION

C-2.1 BFS: 25 mm

Size	**XS**			**S**			**M**			**L**			**XL**		
Threat	Standard	Upgrade 1	Upgrade 2	Standard	Upgrade 1	Upgrade 2	Standard	Upgrade 1	Upgrade 2	Standard	Upgrade 1	Upgrade 2	Standard	Upgrade 1	Upgrade 2
1	2.26	2.43	2.93	2.54	2.71	3.21	2.83	3.00	3.50	2.99	3.19	3.79	3.28	3.48	4.08
2	4.26	5.41	6.83	4.64	5.84	7.28	5.03	6.28	7.74	5.30	6.63	8.22	5.71	7.09	8.62
3	4.39	5.61	7.09	4.78	6.05	7.55	5.18	6.50	8.02	5.46	6.86	8.51	5.87	7.34	8.92
4	5.32	7.00	8.91	5.76	7.51	9.45	6.21	8.03	10.00	6.54	8.47	10.58	7.00	9.02	11.04
5	5.86	7.79	9.95	6.32	8.34	10.53	6.79	8.91	11.14	7.16	9.39	11.76	7.65	9.99	12.25
6	7.59	10.37	13.33	8.14	11.05	14.06	8.71	11.75	14.81	9.16	12.38	15.60	9.76	13.12	16.18

C-2.2 BFS: 44 mm

Size	**XS**			**S**			**M**			**L**			**XL**		
Threat	Standard	Upgrade 1	Upgrade 2	Standard	Upgrade 1	Upgrade 2	Standard	Upgrade 1	Upgrade 2	Standard	Upgrade 1	Upgrade 2	Standard	Upgrade 1	Upgrade 2
1	1.88	2.01	2.39	2.10	2.23	2.61	2.33	2.46	2.84	2.46	2.61	3.07	2.69	2.84	3.30
2	3.88	4.99	6.29	4.20	5.36	6.68	4.53	5.74	7.08	4.78	6.06	7.50	5.12	6.46	7.84
3	3.88	4.99	6.29	4.20	5.36	6.68	4.53	5.74	7.08	4.78	6.06	7.50	5.12	6.46	7.84
4	4.81	6.38	8.11	5.18	6.82	8.58	5.56	7.27	9.06	5.86	7.67	9.56	6.25	8.15	9.96
5	5.21	6.98	8.89	5.60	7.44	9.39	6.00	7.93	9.91	6.32	8.36	10.45	6.74	8.87	10.86
6	6.95	9.56	12.27	7.42	10.15	12.92	7.91	10.77	13.59	8.33	11.34	14.28	8.84	12.01	14.80

Configuration	**SAP**	**HAP**
Standard	Front, back and side protection	Front and back protection
Upgrade 1	Front, back and side protection	Front, back and side protection
Upgrade 2	Front, back, side, groin and throat protection	Front, back, side, groin and throat protection
NOTE — Shoulder protection SAP shall need to be specifically mentioned by the user with additional weight.		

[*Page* 36, *Annex* G] — Substitute the following for the existing annex:

‘ANNEX G

(*Clause* 7.3)

CALCULATION OF NUMBER OF SAMPLES

G-1 EXAMPLE 1 (TENDER SAMPLE)

G-1.1 Requirements

a) Size : Two (Medium, Large)
b) Threat level : 5
c) Operational requirements : 1) Fluid exposure (water)
2) Low temperature test
3) Life assessment

G-2 For level 5, the material has to clear levels 1 and 3 as well. Therefore, 3 threat levels to be tested. Calculation of number of samples shall be as given in Table 18

Table 18 Calculation of Number of Samples

(*Clause* G-2)

Sl No.	Threat Level	Size	Operating Condition	No. of Jackets	Total Jackets Required for Ballistic Testing
(1)	(2)	(3)	(4)	(5)	(6)
i)	1 (only if the design is ICW)	M, L (any one size)	Water	1 (Only SAP)	03 (+ 01 standby)
			Low temperature	1 (only SAP)	
			Life assessment	1 (only SAP)	
ii)	3 (7.62×51)	M	Water	1 (HAP + SAP)	03 (+ 01 standby)
			Low temperature	1 (HAP + SAP)	
			Life assessment	1 (HAP + SAP)	
		L	Water	1 (HAP + SAP)	03 (+ 01 standby)
			Low temperature	1 (HAP + SAP)	
			Life assessment	1 (HAP + SAP)	
iii)	5 (7.62×39)	M	Water	1 (HAP + SAP)	03 (+ 01 standby)
			Low temperature	1 (HAP + SAP)	
			Life assessment	1 (HAP + SAP)	
		L	Water	1 (HAP + SAP)	03 (+ 01 standby)
			Low temperature	1 (HAP + SAP)	
			Life assessment	1 (HAP + SAP)	
iv)	**Total Bullet Resistant Jackets required per design**				15 (+5 standby)

NOTE — For tender sample, one complete jacket shall be considered as one sample.’

[*Page* 37*, Table* 19] — Substitute the following for the existing table:

‘Table 19 Test Standards for Various Operating Conditions

(*Clause* H-2)

Sl No.	**Test Type**	**Reason for Testing**	**Relevance**
(1)	(2)	(3)	(4)
i)	Low temperature	Transportation/Storage (Open and shelter) in cold regions	Agencies where jackets are exposed to sub-zero temperatures
ii)	Fluid exposure	Continuous or temporary exposure to degrading fluids	All agencies
		For sea and coastal regions	Navy/Marine and coastal agencies
iii)	In-transit conditions	Article free to bounce, collide with other articles/sides of vehicle Article is not secured to vehicle floor	All agencies

(TXD 32)

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